CHEMISTRY

# How do we know that the reaction to form pink hydrated cobalt (II) chloride from blue anhydrous cobalt (II) chloride is exothermic? [closed]

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How do we know that the reaction to form pink hydrated cobalt (II) chloride from blue anhydrous cobalt (II) chloride is exothermic?

equilibrium

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edited Nov 13 '21 at 9:37
huzaifa abedeen
**1**

asked Nov 13 '21 at 9:04
Japji
**1**

1 Have you ever put any thought into it before asking? If yes then the community wants to see your train of thoughts. If not then the community will wait until you do. – Poutnik Nov 13 '21 at 9:14

2 How do we know this? I cannot answer for certain, but I would hazard the guess that someone somewhere did the experiment and measured the heat generated. Chemistry works like that. – Waylander Nov 13 '21 at 9:41

I think in this specific case the question isn't even that bad, or at least there is a good answer. Since I asked something similar a while ago it would probably be best to read the answer given back then: chemistry.stackexchange.com/questions/83469/... – Justanotherchemist Nov 15 '21 at 6:44

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## 1 Answer

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**This post is hidden**. It was deleted last month by Todd Minehardt ♦.

Anhydrous cobalt(II) chloride is blue in colour but on dissolving in water it changes to pink in colour with the change in coordination number to six. $Co(II)Cl_2$ has a blue colour in tetrahedral geometry.

$$CoCl_2 \cdot 6\,H_2O \longrightarrow [Co(H_2O)_6]Cl_2$$

The anhydrous salt $Co(II)Cl_2$ has a blue colour in tetrahedral geometry and the hexahydrate $[Co(H_2O)_6]Cl_2$ is octahedrally coordinated complex.

Hydration enthalpies are usually exothermic as energy is given out as water of crystallization bonds to the anhydrous metal ion.

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edited Nov 13 '21 at 10:30

Waylander
**17.5k** 3 26 45

answered Nov 13 '21 at 9:36

huzaifa abedeen
**1**

2 I have to say to me this doesn't answer the question, which is "How do we **know** that the reaction ... is exothermic?" (emphasis mine) – Ian Bush Nov 13 '21 at 11:35

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